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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/020,082	12/11/2001	Thomas E. West JR.	TWI-009	1128

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EXAMINER
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MATZEK, MATTHEW D

ART UNIT	PAPER NUMBER
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1771

DATE MAILED: 05/13/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

12

<b>Office Action Summary</b>	<b>Application No.</b> 10/020,082	<b>Applicant(s)</b> WEST, THOMAS E.	
	<b>Examiner</b> Matthew D. Matzek	<b>Art Unit</b> 1771	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 11 December 2001.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-23 is/are pending in the application.
- 4a) Of the above claim(s) 17-23 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-16 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>all</u> . | 6) <input type="checkbox"/> Other: _____  |

*HL*

## DETAILED ACTION

### *Election/Restrictions*

Restriction to one of the following inventions is required under 35 U.S.C. 121:

- I. Claims 1-16, drawn to a polishing pad, classified in class 442, subclass 59.
- II. Claims 17-23, drawn to a method of making a polishing pad, classified in class 427, various subclasses.

The inventions are distinct, each from the other because of the following reasons:

1. Inventions II and I are related as process of making and product made. The inventions are distinct if either or both of the following can be shown: (1) that the process as claimed can be used to make other and materially different product or (2) that the product as claimed can be made by another and materially different process (MPEP § 806.05(f)). In the instant case the nonwoven felt of polymer fibers may be drawn through the resin.
2. Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.
3. Because these inventions are distinct for the reasons given above and have acquired a separate status in the art because of their recognized divergent subject matter, restriction for examination purposes as indicated is proper.
4. During a telephone conversation with Larry Williams on 4/27/2005 a provisional election was made without traverse to prosecute the invention of a polishing pad, claims 1-16.

Affirmation of this election must be made by applicant in replying to this Office action. Claims

Art Unit: 1771

17-23 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 1-6 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.
6. The aforementioned instant claims supra recite physical properties, but fail to set forth what provides for said properties. Ex parte Slob, 157 USPQ states the following with regard to an article claimed by defining property values:

Claims merely setting forth physical characteristics desired in article, and not setting forth specific compositions, which would meet such characteristics, are invalid as vague, indefinite, and functional since they cover any conceivable combination of ingredients either presently existing or which might be discovered in future and which would impart desired characteristics, thus, expression "a liquefiable substance having a liquification temperature from 40°C to about 300°C and being compatible with the ingredients in the powdered detergent composition" is too broad and indefinite since it purports to cover everything which will perform the desired functions regardless of its composition, and in effect, recites compositions by what it is desired that they do rather than what they are; expression also is too broad since it appears to read upon materials that could not possibly be used to accomplish purposes intended.

7. Claims 3-4 are rejected as they recite the limitation "pore structure" in a pad. There is insufficient antecedent basis for this limitation in the claim.
8. Claims 13-16 are rejected because the use of the term "CMP". Applicant is directed to provide the full and complete meaning for "CMP".

***Claim Rejections - 35 USC § 103***

Art Unit: 1771

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claims 1-12 are rejected under 35 U.S.C. 103(a) as obvious over Sevilla et al. (US Patent 6,126,532) in view of Reinhardt (US Patent 6,095,902).

10. Sevilla et al. disclose a polishing pad for polishing a semiconductor wafer, which includes a porous substrate made of synthetic resin. A pad containing a polyurethane resin impregnated into a polyester nonwoven fabric is a common type of polishing pad (col. 1, lines 58-65). The pores of the porous substrate have an average pore diameter of from about 5 to about 100 microns. The porous substrate is a uniform, continuous and tortuous interconnected network of capillary passage (Abstract). Table 1 discloses pad densities of from 0.5-0.95 g/cc. A wide range of conventional thermoplastic resins may be used in the present invention provided that the resins may be formed into an open-celled substrate utilizing a sintering process. Useful thermoplastic resin include, for example, polyvinylchloride, polyvinylfluoride, nylons, fluorocarbons, polycarbonate, polyester, polyacrylate, polyether, polyethylene, polyamide, polyurethane, polystyrene, polypropylene and the like and mixtures thereof (col. 6, lines 10-15). The disclosure of Sevilla et al. is silent as the Shore D hardness of the polishing pad.

11. Reinhardt teaches a polishing pad fabricated from both polyester and polyurethane (Abstract). The final polishing pad preferably has a density of greater than 0.5 g/cc and hardness of 25 to 80 Shore D (col. 2, lines 60-63).

Art Unit: 1771

12. It would have been obvious to one of ordinary skill in the art to have made the polishing pad with the Shore D hardness of Reinhardt. The skilled artisan would have been motivated by the desire to successfully create a polishing pad for use in the semiconductor industry.

13. The prior art is silent to the density of the nonwoven fabric and compressive modulus of the pad. As the articles of the prior art meet the chemical and compositional limitations set forth in the instant claims it is reasonable to presume that instantly claimed properties are provided for in the article of the prior art.

14. Claims 1-16 are rejected under 35 U.S.C. 103(a) as obvious over Jensen, Jr. (US Patent 4,782,552) in view of Reinhardt.

15. Jensen, Jr. discloses a poromeric article comprising a felt sheet of fibers impregnated with microporous elastomer (Abstract). Conventional substrates used for polishing include nonwoven felts of polyester fibers impregnated with urethane (col. 1, lines 29-33). The denier of the fibers used in the applied patent may range from less than 1.0 to about 6.0 denier (col. 10, lines 39-44). The felt of the applied invention may have a density of 0.20 g/cc to about 0.30 g/cc (col. 11, lines 25-30). The micropores of the elastomer are interconnected by a matrix of microtubes. The micropore-microtube interconnected structure provides the elastomer and the resulting poromeric article with microporous, breathable characteristics (col. 13, lines 31-39). Figure 16 teaches elastomer to fiber ratios ranging from 50:50 to 28:72. The disclosure of Jensen, Jr. is silent as the Shore D hardness of the polishing pad and density of the polishing pad.

16. Reinhardt teaches a polishing pad fabricated from both polyester and polyurethane (Abstract). The final polishing pad preferably has a density of greater than 0.5 g/cc and hardness of 25 to 25 to 80 Shore D (col. 2, lines 60-63).

Art Unit: 1771

17. It would have been obvious to one of ordinary skill in the art to have made the polishing pad with the Shore D hardness and density of Reinhardt. The skilled artisan would have been motivated by the desire to successfully create a polishing pad for use in the semiconductor industry.

18. The prior art is silent compressive modulus of the pad, modulus of the resin, and pad permeability. As the articles of the prior art meet the chemical and compositional limitations set forth in the instant claims it is reasonable to presume that instantly claimed properties are provided for in the article of the prior art.

19. The Examiner takes the position that the limitation set forth in instant claim 8 of "about 0.32 grams per cubic centimeter" provides for felt densities of 0.32 +/- 0.03 grams per cubic centimeter.

### ***Conclusion***

20. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Matthew D. Matzek whose telephone number is (571) 272-2423.

The examiner can normally be reached on 8:30 am - 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Terrel Morris can be reached on (571) 272-1478. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Art Unit: 1771

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

mdm

*MDM*

*Elizabeth M. Cole*  
ELIZABETH M. COLE  
PRIMARY EXAMINER